# *A Comment on Labor Market Definition*

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As part of their review of the 2010 Merger Guidelines, the Department of Justice and the Federal Trade Commission have requested comment on issues specific to "monopsony power and labor markets."[1] This reflects a recent surge in interest among policymakers and academics in the potential for employers to keep worker compensation below competitive levels.[2] In an executive order issued in July 2021, President Biden expressed his administration's determination "to enforce the antitrust laws to combat the excessive concentration of industry, the abuses of market power, and the harmful effects of monopoly and monopsony—especially as these issues arise in labor markets" and a short list of other areas of the U.S. economy.[3] More recently, on March 7th, 2022, the Treasury Department published a report on the "state of labor market competition" that includes proposals for new legislation and antitrust enforcement meant to "improve competition for American workers."[4]

This call to action means that the DOJ and FTC must grapple with the particular complexities of labor markets and develop an approach to the analysis of monopsony power that appropriately accounts for them. In this comment, we explain how characteristics inherent to the worker-employer relationship can create challenges for the definition of relevant antitrust labor markets. These challenges can be rigorously analyzed in merger review settings where access to a broad set of evidence specific to the firms and labor markets at-issue can inform conceptual or econometric approaches to market definition.

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[1] U.S. Department of Justice and U.S. Federal Trade Commission, "Request for Information on Merger Enforcement," January 18, 2022, p. 6.

[2] See, e.g., Ioana Marinescu and Herbert Hovenkamp, "Anticompetitive Mergers in Labor Markets," *Indiana Law Journal*, 94(3), 2019, pp. 1031–1063; Suresh Naidu et al., "Antitrust Remedies for Labor Market Power," *Harvard Law Review*, 132(2), 2018, pp. 536–601.

[3] The White House, "Executive Order on Promoting Competition in the American Economy," July 9, 2021, available at https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy.

[4] U.S. Department of the Treasury, "The State of Labor Market Competition," March 7, 2022, available at https://home.treasury.gov/system/files/136/State-of-Labor-Market-Competition-2022.pdf.

Specifically, our comment is responsive to parts c, g, and h of Question 9 listed in the DOJ and FTC's January 18, 2022 Request for Information on Merger Enforcement.[5]

- Question 9.c: Are there differences between monopsony power in labor markets and other upstream markets?
- Question 9.g: In addition to wages, salaries, and other financial compensation, what aspects of workers' terms and conditions of employment should be considered?
- Question 9.h: How should a labor market be defined in terms of job characteristics, geography, and worker flows? Should the guidelines adopt presumptions around the definition of relevant labor markets based on existing government analyses such as defined commuting zones and labor market areas?

Our comment is organized as follows. In Section 1, we discuss relevant principles of labor market definition, responsive to question 9.h. In Section 2, we highlight the importance of accounting for non-wage compensation, responsive to questions 9.c and 9.g. In Section 3, we discuss types of information and evidence that may be available when analyzing a labor market, responsive to question 9.h.

## 1. Principles of Labor Market Definition

A common starting point for relevant labor market analysis is an assessment of the set of employers (i.e., substitutes) that could reasonably compete for the worker when making employment decisions. These employers also represent alternatives the job seeker can turn to should their wages be suppressed below competitive levels.

This framework—where the scope of a relevant market is determined by analyzing substitution opportunities into and out of a proposed relevant market—is referred to as the Hypothetical Monopsonist Test and is the direct analogue of the product market Hypothetical Monopolist Test.[6]

The intuition of this framework is straightforward. If a relevant market is properly defined, a hypothetical monopsonist employer that controls such a market can lower compensation without concern of workers leaving for other employers. If, on the other hand, workers can readily leave for other employers when compensation is lowered, then the market is broader and efforts to suppress wages will result in

[5] U.S. Department of Justice and U.S. Federal Trade Commission, "Request for Information on Merger Enforcement," January 18, 2022, pp. 6–7.

[6] "U.S. Department of Justice and U.S. Federal Trade Commission, Horizontal Merger Guidelines," August 19, 2010 ("Horizontal Merger Guidelines"), p. 8; Suresh Naidu et al., "Antitrust Remedies for Labor Market Power," *Harvard Law Review*, 132(2), 2018, pp. 536–601, p. 574.

employees switching to other firms and/or a competitive response by the current employer in order to retain workers. In the latter case, a broader market definition should be proposed and subjected to the same thought experiment, with the exercise continuing until a labor market definition is found where the hypothetical monopsonist would be able to reduce compensation without fear of a critical mass of workers leaving for other employers.

Labor market definition should consider both the geographic dimension and what might be termed the "product" dimension of the labor market. More specifically:

- The geographic dimension of labor market definition refers to the area within which job seekers are willing to consider employment. The potential for *labor mobility* is thus an important aspect of labor market definition.
- The "product" dimension of labor market definition refers to the set of jobs that job seekers are willing to consider and qualified for. This refers to the *match* between a job seeker's skills, training, and interests, and the job and employer.

These dimensions are often interrelated. A worker who has invested in highly specialized skills may be willing to move further in order to leverage these skills. For example, a professional athlete may choose to join a team with little consideration for where that team is located. Conversely, a worker with less specific skills may be less willing to move to a different city but more willing to consider a wider set of employment options. For example, a former quick-service restaurant worker may be as likely to take employment in retail or at a warehouse as to remain in the quick-service industry.

Analogous methods can be used to ascertain relevant markets in product and labor markets. In product markets, both dimensions of market definition are often assessed by considering whether a hypothetical monopolist would be able to profitably increase prices by a small but significant and non-transitory amount (referred to as a "SSNIP" test).[7] The SSNIP test has a direct analogue in labor markets in what can be referred to as a SSNRW or SSNDW test (small but significant reduction/decrease in wages).[8] A SSNRW considers whether a hypothetical monopsonist employer in a proposed labor market would be able to reduce wages a small but significant and non-transitory amount below the competitive level without losing a critical mass of workers to other competing employers. The empirical relationship between changes in wages offered by a firm and

[7] Horizontal Merger Guidelines, pp. 9, 13.

[8] Ioana Marinescu and Herbert Hovenkamp, "Anticompetitive Mergers in Labor Markets," *Indiana Law Journal*, 95(3), 2019, pp. 1031–1063 at p. 1050; José Azar et al., "Estimating Labor Market Power," Manuscript, 2019, p. 19; Suresh Naidu et al., "Antitrust Remedies for Labor Market Power," *Harvard Law Review*, 132(2), 2018, pp. 536–601 at p. 574.

workers' decision to stay with or leave a position at that firm (i.e., the extensive or residual labor supply elasticity) could be used to implement a SSNRW test.[9] Extensive academic literature exists that estimates these elasticities.[10]

The focus on wages in the SSNRW can be overly narrow because compensation oftentimes includes valuable non-wage components. We, thus, view a SSNRC—i.e., a small but significant reduction in *compensation* (understood broadly)—as a more robust analytical framework that reflects the many aspects of a job that drive workers' employment decisions. When empirically evaluating the likely effects of a SSNRC, accounting for differences and changes in non-wage compensation is critical.

## 2. Accounting for Non-Wage Compensation Can Be Important

In the implementation of the Hypothetical Monopsonist Test, as in other aspects of market definition, it is tempting to overextend the analogy between labor and product markets. The temptation here is to take wages to be analogous to prices in a product market. However, compensation may often be more complex than prices in a product market; for many workers, their compensation is multidimensional and more complex than simply W-2 income. For example, workers may care about benefits such as health insurance, retirement plans, and pension plans; flexibility to set their own schedules; workplace safety; and workers' inherent preferences for the type of work.[11]

Some of these non-wage aspects may be quantifiable. For example, the value of insurance could be approximated by the associated premium paid for by the employer,[12] while others, like flexibility, may be more difficult to quantify directly,

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[9] For a discussion of the residual labor supply elasticity as it applies to market definition, see Suresh Naidu et al., "Antitrust Remedies for Labor Market Power," *Harvard Law Review*, 132(2), 2018, pp. 536–601 at p. 574—576. For an application of the estimation of labor supply elasticity, see, e.g., José Azar et al., "Estimating Labor Market Power," Manuscript, 2019, pp. 19–21.

[10] Examples of academic literature estimating labor supply elasticities in the context of monopsony power include, e.g., Jordan D. Matsudaira, "Monopsony in the Low-Wage Labor Market? Evidence from Minimum Nurse Staffing Regulations," *Review of Economics and Statistics* 96(1), 2014, pp. 92—102; Douglas Staiger et al., "Is There Monopsony in the Labor Market? Evidence from a Natural Experiment," *Journal of Labor Economics,* 28(2), 2010, pp. 211—236; Torberg Falch, "The Elasticity of Labor Supply at the Establishment Level," *Journal of Labor Economics,* 28(2), 2010, pp. 237–266; Michael R. Ransom and David P. Sims, "Estimating the Firm's Labor Supply Curve in a 'New Monopsony' Framework: Schoolteachers in Missouri," *Journal of Labor Economics,* 28(2), 2010, 331-355; William M. Boal, "Testing for Employer Monopsony in Turn-of-the-Century Coal Mining," *RAND Journal of Economics*, 26(3), 1995, pp.519–536.

[11] Edward P. Lazear and Paul Oyer, "Personnel Economics," in *Handbook of Organizational Economics*, eds. Robert Gibbons and John Roberts (New Jersey: Princeton University Press, 2012), pp. 479–519 at pp. 499–501. Non-wage aspects of a job in some instances may be analogous to non-price aspects of a product in a product market such as quality.

[12] For example, in 1996 health care premiums accounted for over 7% of compensation. A significant portion of these premiums are often paid for by employers. See Jonathan Gruber, "Health Insurance and the Labor Market," in

but have been discussed in the literature, as we emphasize below. Empirical analyses of the elasticity of labor supply that could assist in the implementation of a SSNRC must be careful to consider that the variation in compensation (typically wages) that is used is true variation in compensation and is not offset by compensating differences in non-wage benefits of employment.[13]

The importance of non-pecuniary aspects of workers' employment decisions is well-documented in the academic literature. One recent factor that has been a focus of academic work is the value of flexible work. For example, recent research has found that, when giving Uber drivers a choice between the commission based ride-hailing structure and a "medallion-like" fee structure (which offers less flexibility as you are required to make minimum earnings to pay for the medallion lease), Uber drivers were willing to give up a third of their earnings to avoid a lease fee.[14] Other research has found that workers trade-off higher wages for flexibility in working hours, interruptions in employment, and other "family-related amenities."[15] Firms have responded to these demands by competing to offer more flexible work options, including offerings like remote work.[16]

When making employment decisions, workers may evaluate the overall value that the relationship with the employer generates for them in the long-term. Unlike many product and input markets, labor markets can generate lasting relationships between workers and employers.[17] These relationships are of great importance to the productivity of the firm and the welfare of the worker alike. Labor economists recognize that "matching the right firms to the right workers (as well as matching workers to the most appropriate jobs within the firms) creates economic value of a magnitude that few other economic processes can."[18] The value of the relationship

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*Handbook of Health Economics*, eds. Anthony J. Culyer and Joseph P. Newhouse (Amsterdam: Elsevier, 2000), pp. 645–706 at p. 647.

[13] For a discussion of the importance of compensating differentials in pay, see Sherwin Rosen, "The Theory of Equalizing Differences," in *The Handbook of Labor Economics*, Volume 1, eds. Orley Ashenfelter and Richard Layard (Amsterdam: Elsevier, 1986), pp. 641–692.

[14] Joshua D. Angrist et al., "Uber vs. Taxi: A Driver's Eye View," *American Economic Journal: Applied Economics*, 13(3), 2021, pp. 272–308.

[15] Claudia Goldin and Lawrence F. Katz, "A Most Egalitarian Profession: Pharmacy and the Evolution of a Family Friendly Occupation," *Journal of Labor Economics*, 34(3), 2016, pp. 705–746; Claudia Goldin and Lawrence F. Katz, "The Cost of Workplace Flexibility for High-Powered Professionals," *The Annals of the American Academy of Political and Social Science*, 638(1), 2011, pp. 45–67.

[16] In some industries, remote work has already become a widely available benefit. See, for example, "For Programmers, Remote Working Is Becoming the Norm," *The Economist*, August 11, 2021, available at https://www.economist.com/graphic-detail/2021/08/11/for-programmers-remote-working-is-becoming-the-norm.

[17] Edward P. Lazear and Michael Gibbs, *Personnel Economics in Practice*, Third Edition, (Hoboken, NJ: John Wiley & Sons, Inc., 2015), p. 51; Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, Third Edition, (NBER, 1975); Daron Acemoglu and Jörn-Steffen Pischke, "Beyond Becker: Training in Imperfect Labour Markets," *The Economic Journal*, 109(453), 1999, pp. 112–142.

[18] Edward P. Lazear and Paul Oyer, "Personnel Economics," in *Handbook of Organizational Economics*, eds. Robert Gibbons and John Roberts (New Jersey: Princeton University Press, 2012), pp. 479–519 at p. 492. The quality of a

depends on investments from both sides in training, work experience, education, etc. Some of these investments are firm-specific and the resulting skills are not transferable to other jobs.[19] To cite an example from Gary Becker's seminal work, the military offers some forms of training that are easily transferable to civilian occupations, but specialized aspects of training specific to, for example, "fighter pilots or missile men" may be of less use outside of military occupations.[20]

The value created by a match between a worker and their employer, and the relationship-specific investments both parties make in the relationship mean that, if the match is strong on numerous dimensions beyond wage (training, benefits, etc.), the worker may prefer to keep their existing job over offers for other jobs with higher wages but with less attractive non-wage features. That is, there is a trade-off between job mobility and seeking higher wages, on one hand, and maximizing value of the employment relationship with regard to all features of the job (including non-wage components), on the other. Moreover, the value of relationship-specific investments may increase with a worker's tenure.

The existence of valuable relationship-specific investments can pose a challenge for empirical assessments of the elasticity of labor supply (and, thus, market definition) that focus only on wages. Indeed, the existence of valuable non-wage factors that influence worker mobility can lead to labor elasticity estimates that are unreliable.[21] Therefore, empirical estimates of workers' propensity to change jobs in response to changes in wages should be used with caution when evaluating labor market definition and market power.[22] Rather than focus on job switching in response to changes in only salary or wages, the proper conceptual approach is to focus on job switching in response to changes in the overall value of the relationship (including all forms of compensation and non-pecuniary benefits specific to the relationship).

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match can depend on a firm's comparative advantage in offering a compensation package (wages, benefits, flexibility, enjoyable work, etc.) that the worker values.

[19] Gary S. Becker, *Human Capital*, Third Edition, (New York: Columbia University Press, 1964).

[20] Gary S. Becker, *Human Capital*, Third Edition, (New York: Columbia University Press, 1964), Chapter 3. Note, however, that there may also be some general aspects of training, even for specialized positions with specialized skillsets, that are transferable. Going back to Becker's example, military training might also be predictive of punctuality, which employers might value.

[21] For example, Chetty et al. (2011) find that adjustment costs and hours constraints can lead microeconometric methods to systematically underestimate labor supply elasticity. Raj Chetty et al., "Adjustment Costs, Firm Responses, and Micro vs. Macro Labor Supply Elasticities: Evidence from Danish Tax Records," *The Quarterly Journal of Economics*, 126(2), 2011, pp. 749–804.

[22] For example, a firm (Firm A) might respond to an increase in wages from a labor market competitor (Firm B) by expanding a number of valuable non-wage benefits of the job (e.g., remote work, flexible schedule). If these non-wage benefits are not accounted for in an empirical analysis of wages and mobility between the two firms, a researcher might incorrectly conclude that Firm B does not impose a competitive check on Firm A because, on the margin, workers from Firm A do not switch to Firm B when it raises wages. This analysis would be flawed, however because it omits the critical fact that Firm A did respond to Firm B's wage increase – i.e., Firm A increased its overall compensation through an increase non-wage benefits.

The value of non-wage aspects of the employment relationships is also important when assessing market power. For example, an analysis of a firm's compensation that ignores non-wage benefits and focuses solely on wages might conclude that the firm's wages are lower than at competing firms and, thus, infer that the firm has some level of market power over its workers. This, however, is flawed economic logic. If workers explicitly prefer the firm's compensation package of slightly lower wages but higher non-wage benefits (e.g., remote work, flexible hours), then the firm is not suppressing the worker's total compensation. In fact, the firm is competing for workers by offering a bundle of benefits that are more valuable to the worker; this is equivalent to higher total compensation and is procompetitive. Thus, any assessment of market power needs to account for all components of compensation that workers value.

In academic work that has analyzed worker mobility in the context of market power concerns, data that tracks non-pecuniary forms of pay (and/or all forms of compensation) is oftentimes not available. In a merger review setting, a wealth of proprietary data and documentary evidence are available to test the consistency of a proposed market definition with actual employment choices and to gain an understanding of the importance of non-wage factors.

### 3. Labor Market Definition Should Consider All Available Evidence

In merger review and litigation settings, economists can gain access to data and documents through discovery from the parties involved and subpoenas to third-parties. This wealth of information should be considered when delineating labor markets. Pre-defined categories such as commuting zones and labor market areas can be a helpful starting point,[23] but can fail to capture the economic realities of any given labor market.

Economists often rely on pre-determined geographic areas (e.g., commuting zones) to determine the geographic scope of a labor market.[24] Similarly, economists sometimes use pre-determined job or industry classifications to study the "product" dimension labor markets that groups together occupations based on job duties or

[23] U.S. Department of Agriculture, "Commuting Zones and Labor Market Areas," available at https://www.ers.usda.gov/data-products/commuting-zones-and-labor-market-areas.

[24] Commuting zones are a common geographical classification used in the academic literature to define a labor market geographically. See for example: José Azar et al., "Labor Market Concentration," *Journal of Human Resources*, May 2020; Efraim Benmelech et al., "Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?" *Journal of Human Resources*, 57(3), 2022, pp. S200–S250; Elena Prager and Matt Schmitt, "Employer Consolidation and Wages: Evidence from Hospitals," *American Economic Review*, 111(2), 2021, pp. 397–427.

production processes.[25] In some research contexts, these predetermined geographic and industry definitions might be an appropriate starting point to examine general relationships between the characteristics of certain types of jobs and labor market outcomes. In other instances, the researcher may be limited to one of these definitions of a labor market given the available data. However, in a merger review or litigation context, additional information is typically available. This additional information can and should be brought to bear on the question of the relevant labor market definition and how that may vary for different types of workers.

In fact, classifications based on industry or commuting zones may be problematic when analyzing a merger. Workers with general skills can move between industries and certain types of workers may be more willing to relocate for an employment opportunity than others. For example, employees at a medical hospital are considered to work in the General Medical and Surgical Hospitals industry (NAICS Code 6221), but at least some of these employees could find jobs outside of a hospital. Hospitals employ some workers with general skills (from unskilled cafeteria workers to skilled workers in the employee benefits department) in addition to more specialized workers, including nurses and surgeons.

Suppose, for example, that the only two hospitals in a hypothetical commuting zone planned to merge so that the merger would result in a single employer in the General Medical and Surgical Hospital industry in that commuting zone. The merged entity may or may not have monopsony power over their employees, and the answer to this question may differ across employees. The hospital may not have monopsony power over employees with general skills, simply because the product dimension of their labor market is broader than the General Medical and Surgical Hospital industry (e.g., cafeteria workers or business managers).[26] If the hospital attempted to lower wages or increase hours, the employees with general skills could consider employment options outside of the hospital. On the other hand, if the hospital were the only medical care facility in the commuting zone, it might be the only feasible place of employment for specialized surgeons. The merger could subject these workers to monopsony power held by the hospital. Yet again, there could also be evidence that these highly specialized workers are willing to relocate beyond a hypothetical commuting zone. If it is common for surgeons to pursue employment

[25] Examples of these pre-determined classification systems include the Standard Occupational Classification ("SOC"), which groups together detailed occupations with similar job duties (see U.S. Bureau of Labor Statistics, "Standard Occupational Classification," available at https://www.bls.gov/soc), and the North American Industry Classification System ("NAICS") which classifies economic units that have similar production processes into the same industry (see U.S. Census Bureau, "North American Industry Classification System," available at https://www.census.gov/naics).

[26] Indeed, recent research analyzing the effects of hospital mergers on wages finds no effect on wages for workers whose skills are not specific to the hospital industry. See, Elena Prager and Matt Schmitt, "Employer Consolidation and Wages: Evidence from Hospitals," *American Economic Review*, 111(2), 2021, pp. 397–427.

opportunities beyond their commuting zone, a competitive opportunity in a hospital elsewhere would diminish the monopsony power of the hospital in this example.

The example above raises empirical questions: how far do employees search for employment, in terms of geography and industry and how does that vary by job and skill type? The answer to these questions can provide a foundation for defining a relevant market. Pre-defined geographic or industry definitions may be a starting point, but analyzing actual employment patterns in the data will shed light on which opportunities employees actually consider as well as the scope of workers that employers consider for open positions.

In the context of merger review or litigation, information is typically available that describes the frequency and scope with which the at-issue employees move between employment opportunities. Examples of data sources that may be available in the merger review or litigation context that can inform a labor market definition could include:[27]

- Employee CVs and social media profiles (e.g., LinkedIn) showing their employment histories, including locations;
- Documents showing jobs considered by employees in the firm or industry of interest;
- Data from job posting websites, including application information with location data, skills required, job responsibilities, etc.;
- Documents from employers showing their recruiting strategies, including job fairs, campus visits, specific skills/profiles targeted, etc.;
- Deposition testimony from both employers and employees describing job searches and consideration sets;
- Data on hiring, turnover, and compensation for employers involved in the litigation; and
- Labor market research reports.

We also note that the increase in remote work coming out of the COVID-19 pandemic can have important implications for the scope of geographic competition in labor markets. For any given labor market at-issue, and for the different jobs that might be candidates for that labor market, a careful assessment of the role that remote work plays can be important. For example, remote work can allow firms to expand the number of candidates they might consider for a given job, and can also allow workers to expand the number of firms they will consider in seeking a job.

[27] This list is not intended to be exhaustive, and any particular merger review or litigation context could raise unique considerations to be taken into account.

Considering all available data sources, including those listed above, can help guide a labor market definition by documenting observed patterns of job search and employment behavior, i.e., the types of jobs employees arrive from and leave for. They also shed light on where employers actually look to fill positions. This can be important because seemingly unrelated employment opportunities may in fact be substitutes from the worker's perspective. For example, a retail worker may well leave their job to drive for a ride-hailing app, or work in food services. Pre-defined industry or occupation codes likely would not group retail, ride-hailing app, and food service, but workers may consider all of these opportunities when making employment decisions. On the other hand, an occupation code such as "Computer Programmers" may fail to appreciate specific programming language experience that one computer programmer may have that others do not.[28] In this case, analyzing the recruiting patters of the employer may reveal a relevant labor market that is narrower than an occupation code in the "product" dimension.

[28] Computer Programmers is SOC 15-1251 under the 2018 classification system. Computer Programmers is not the finest level of classification. Examples include Applications Programmer, Computer Language Coder, IT Programmer, and Systems Programmer.